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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,953	02/26/2004	Mukundan Narasimhan	09140-0030-00000	5786

22852 7590 12/02/2005

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EXAMINER	
MANDALA, VICTOR A	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/789,953	NARASIMHAN ET AL.	
	Examiner	Art Unit	
	Victor A. Mandala Jr.	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) *6-24,31-33 and 35-45* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,25,27-30 and 34* is/are rejected.

7)☒ Claim(s) *26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1/05,8/05,10/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of the election requirement in the reply filed on 9/16/05 is acknowledged. The Applicant has elected Species I Figure 1C and has stated that claims 1-39 can be read on the elected species. The examiner has considered the Applicant's elected claims, but finds them to read on nonelected species. Claims 6-24, 31-33, 35-39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/16/05. Claims 1-5, 25-30, and 34 will be examined.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 25, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,683,244 Fujimori et al.

2. Referring to claim 1, a dielectric layer, comprising: a densified amorphous dielectric layer, (Figure 1 #8), deposited on a substrate by pulsed-DC, substrate, (Figure 1 #2), biased physical vapor deposition, (See ** on the next page), wherein the densified amorphous dielectric layer is a barrier layer, (Figure 1 #8 Col. 12 Lines 64-66).

** Initially, and with respect to claims 1-5, 25-30, and 34, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

3. Referring to claim 2, a layer of claim 1, wherein the deposition is performed with a wide area target, (See ** above).

4. Referring to claim 3, a layer of claim 1, wherein the barrier layer is also an optical layer, (Col. 12 Lines 56-66).

5. Referring to claim 4, a layer of claim 3, wherein the barrier layer includes a TiO_2 layer, (Col. 12 Lines 64-66).

6. Referring to claim 25, a layer of claim 1, wherein the dielectric film is TiO_2, (Col. 12 Lines 64-66).

7. Referring to claim 34, a layer of claim 1, wherein the water vapor transmission rate is less than about 1×10^{-2} $gm/m^2/day$, (See ** above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 5, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 2003/0173207 Zhang et al.

8. Referring to claim 1, a dielectric layer, comprising: a densified amorphous dielectric layer, (Figure 1 and Figure 4 #408), deposited on a substrate by pulsed-DC, substrate, (Figure 1 #16 and Figure 4 #402), biased physical vapor deposition, (See ** below), wherein the densified amorphous dielectric layer is a barrier layer, (Figure 1 and Figure 4 #408 and Paragraph 0083 and Paragraph 0129 Lines 1-3).

** Initially, and with respect to claims 1-5, 25-30, and 34, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

9. Referring to claim 2, a layer of claim 1, wherein the deposition is performed with a wide area target, (See ** above).

10. Referring to claim 5, a layer of claim 3, wherein the barrier layer includes an Alumina/silica layer, (Figure 1 and Figure 4 #408 and Paragraph 0083 and Paragraph 0129 Lines 1-3).

11. Referring to claim 34, a layer of claim 1, wherein the water vapor transmission rate is less than about 1 X 10^{-2} gm/m^2/day, (See ** above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 28-30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 2002/0140103 Kloster et al.

12. Referring to claim 1, a dielectric layer, comprising: a densified amorphous dielectric layer, (Figure 1 #16), deposited on a substrate by pulsed-DC, substrate, (Figure 1 #12), biased physical vapor deposition, (See ** below), wherein the densified amorphous dielectric layer is a barrier layer, (Figure 1 #16 Paragraph 0024 Lines 3-4 and Paragraph 0029 Lines 1, 7, & 8).

** Initially, and with respect to claims 1-5, 25-30, and 34, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

13. Referring to claim 2, a layer of claim 1, wherein the deposition is performed with a wide area target, (See ** above).

14. Referring to claim 28, a layer of claim 1, wherein the target material comprises materials chosen from a group consisting of Mg, Ta, Ti, A1, Y, Zr, Si, Hf, Ba, Sr, Nb, and combinations thereof, (Figure 1 #16 Paragraph 0024 Lines 3-4 and Paragraph 0029 Lines 1, 7, & 8 and See ** above).

15. Referring to claim 29, a layer of claim 28, wherein the target material includes a concentration of rare earth metal, (Figure 1 #16 Paragraph 0024 Lines 3-4 and Paragraph 0029 Lines 1, 7, & 8).

16. Referring to claim 30, a layer of claim 1, wherein the target material comprises a sub-oxide of a group consisting of Mg, Ta, Ti, Al, Y, Zr, Si, Hf, Ba, Sr, Nb, and combinations thereof, (Figure 1 #16 Paragraph 0024 Lines 3-4 and Paragraph 0029 Lines 1, 7, & 8).

17. Referring to claim 34, a layer of claim 1, wherein the water vapor transmission rate is less than about 1 X 10^{-2} gm/m^2/day, (See ** above).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 27, 28, 30, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 2003/0178637 Chen et al.

18. Referring to claim 1, a dielectric layer, comprising: a densified amorphous dielectric layer, (Figure 4 #24), deposited on a substrate by pulsed-DC, substrate, (Figure 4 #20), biased physical vapor deposition, (See ** below), wherein the densified amorphous dielectric layer is a barrier layer, (Figure 4 #24 Paragraph 0025 Lines 5-8).

** Initially, and with respect to claims 1-5, 25-30, and 34, note that a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); In re Fitzgerald, 205 USPQ 594, 596 (CCPA); In re Marosi et al., 218 USPQ 289 (CAFC); and most recently, In re Thorpe et al., 227 USPQ 964 (CAFC, 1985) all of which make it clear that it is the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that, as here, an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that Applicant has burden of proof in such cases as the above case law makes clear.

As to the grounds of rejection under section 103, see MPEP § 2113

19. Referring to claim 2, a layer of claim 1, wherein the deposition is performed with a wide area target, (See ** above).

20. Referring to claim 27, a layer of claim 1, wherein the target utilized to form the dielectric film is formed from metallic magnesium, (Figure 4 #24 Paragraph 0025 Lines 5-8 and See ** above).

21. Referring to claim 28, a layer of claim 1, wherein the target material comprises materials chosen from a group consisting of Mg, Ta, Ti, Al, Y, Zr, Si, Hf, Ba, Sr, Nb, and combinations thereof, (Figure 4 #24 Paragraph 0025 Lines 5-8 and See ** above).

22. Referring to claim 30, a layer of claim 1, wherein the target material comprises a sub-oxide of a group consisting of Mg, Ta, Ti, Al, Y, Zr, Si, Hf, Ba, Sr, Nb, and combinations thereof, (Figure 4 #24 Paragraph 0025 Lines 5-8 and See ** above).

23. Referring to claim 34, a layer of claim 1, wherein the water vapor transmission rate is less than about 1 X 10^{-2} gm/m^2/day, (See ** above).

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Allowable Subject Matter

24. Claim 26 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor A. Mandala Jr. whose telephone number is (571) 272-1918. The examiner can normally be reached on Monday through Thursday from 8am till 6pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on (571) 272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VAMJ
11/17/05